robbe

ARCUS

Building and Operating Instructions

Arcus V-Tail Prop 1400 ARF

No. 2593

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Dear customer,

Congratulations on your choice of a factory-assembled model aircraft from the robbe Modellsport range. Many thanks for placing your trust in us.

The model can be ready for the air when you have completed just a few simple procedures. Please read right through these instructions and the separate information sheets before attempting to assemble and fly the model, as this will make it much easier to complete the tasks required.

Please study the illustrations and the brief instructions to obtain a clear understanding of the individual stages of construction. All parts must be trial-fitted “dry” (without glue) before you reach for the glue. Assign the individual components to the various stages of assembly.

All directions, such as “right-hand”, are as seen from the tail of the model, looking forward.

We constantly strive to update our products to reflect the latest developments. You can find details of technical improvements and revised documentation on the Internet by calling up the appropriate product description at our website: www.robbe.com.

The model

The V-Tail Prop is the latest addition to the robbe Arcus family, and is an eye-catcher in several ways - not just due to its unusual looks. Its above-average performance in the air, and its suitability for any pilot from the relatively inexperienced flyer with some experience of aileron models right up to the advanced pilot, are ample proof of its tremendous versatility. With its compact dimensions, the Arcus V-Tail Prop is the ideal "evening flyer", as it is easy to transport in any car, and can be ready for flying the moment you reach the club patch. The model can also be fitted with an optional rudder servo.

Specification:

Wing loading approx.:	30 g/dm²
Length approx.:	770 mm
Total surface area approx.:	15 dm²
All-up weight approx.:	450 g
Wingspan approx.:	1400 mm

RC functions:

Elevator, ailerons, throttle

Essential accessories:

1 x CT-2 plug + socket	4077
1 x ROXXY® POWER ZY 3S 1000 mAh 30C	6911
1 x T6J-R2006GS 2.4 GHz FHSS	F4100

Recommended accessories:

1 x CT2 gold charge lead, 2 mm	8254
1 x POWER PEAK® A4 EQ-LCD 230 V / 12 V	8560
1 x Hook-and-loop tape	50590002

Optional:

1 x 8.1 g servo	8975

Set contents:

- Robust moulded EPO foam fuselage, wings and tail panels, with decals applied
- Pre-trimmed canopy
- Small hardware items for control surface linkages and servo well covers
- Factory-assembled propeller and spinner
- Brushless electric motor and speed controller from the robbe E-COLINE series
- Three robbe E-COLINE 8 g servos installed

- Multi-lingual illustrated assembly instructions

Radio control system
For this model you require a radio control system with at least four channels. We particularly recommend 2.4 GHz systems.

The receiving system is powered by the speed controller's integral BEC system.

Before you check the model's working systems, set the control surfaces to neutral from the transmitter (transmitter sticks and trims central).

Before flying the model always move the throttle stick to the "motor stopped" position before switching the transmitter on. Only then connect the battery.
To switch off, first disconnect the flight pack from the speed controller, and only then switch the transmitter off.

When installing or setting up the receiving system components, including the speed controller, be sure to read and observe the instructions supplied with them.

Colour scheme
No painting is required.

Glued joints
All parts must be trial-fitted "dry" (without glue) before you reach for the glue.
Please take great care to avoid excess adhesive running onto the painted surfaces, as this will damage the finish.
The general rule is this: sand all painted joint surfaces and remove all traces of dust before gluing.

Power system
A brushless outrunner motor is factory-installed. The propeller and spinner are already fitted.
The motor is connected to the speed controller, ready for use, and the controller is correctly set up at the factory.
Prior to flying the model all you have to do is connect the LiPo flight battery and the receiver.

Read right through the safety notes for the LiPo battery, and the instructions supplied with the battery charger, before using these items for the first time.

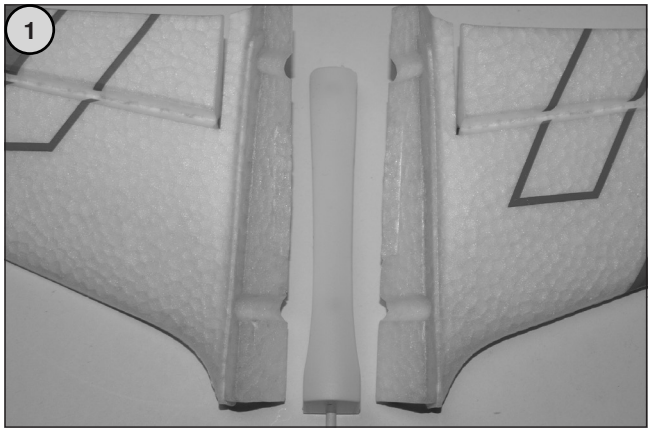


Fig. 1
- The illustration shows both V-tail panels with the hard plastic joiner prior to assembly.

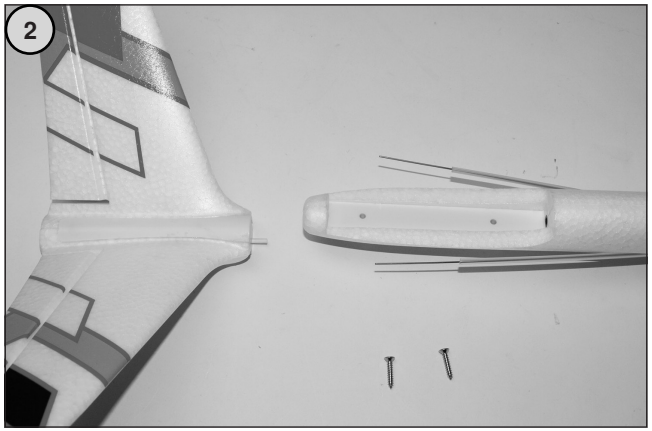


Fig. 2
- Use Ropoxi 5-minute epoxy to glue the two V-tail panels to the hard plastic joiner. Allow the glued joint to set hard.

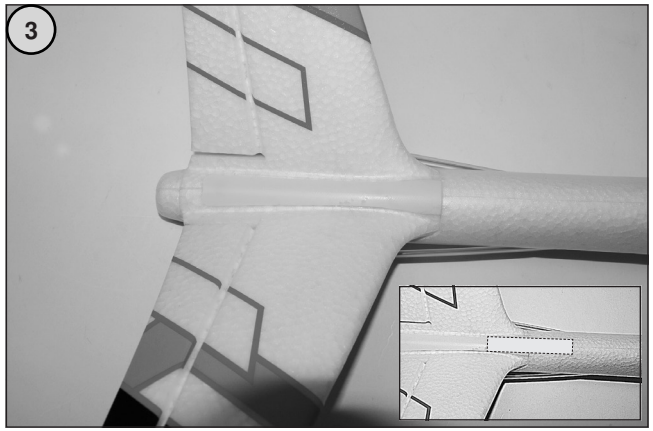


Fig. 3
- Place the V-tail assembly in the recess in the fuselage. Note that the guide lug of the hard plastic joiner must be inserted into the guide tube in the fuselage. Reinforce the transition between fuselage and tail with a strip of clear adhesive tape about 50 mm long (see small picture on the right).

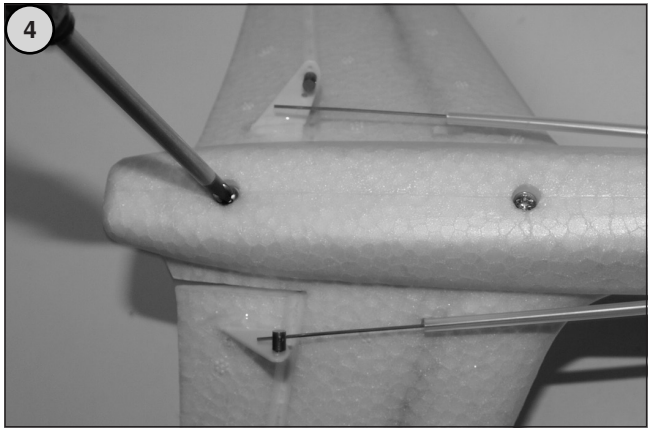


Fig. 4
- Fix the tailplane to the fuselage using the screws supplied: fit them from the underside, and at the same time slip the pushrods into the swivel barrels on the control horns. **Don't tighten the retaining screws at this point!**

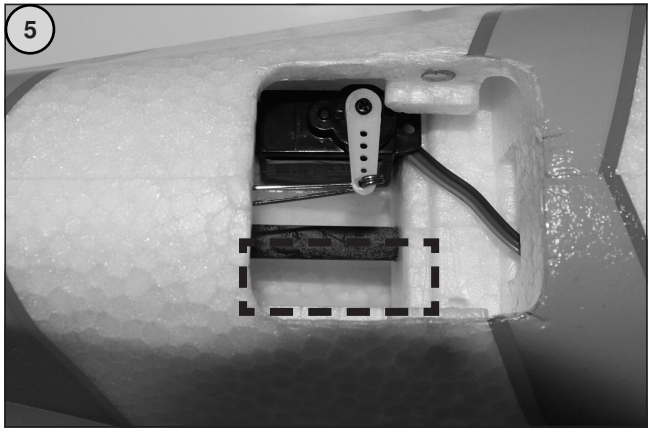


Fig. 5
- Set the servo to centre (neutral) using the transmitter. You can install a second optional servo for the rudder function if desired (see marking). If you wish to take this option, you will need to activate a V-tail mixer at your transmitter.

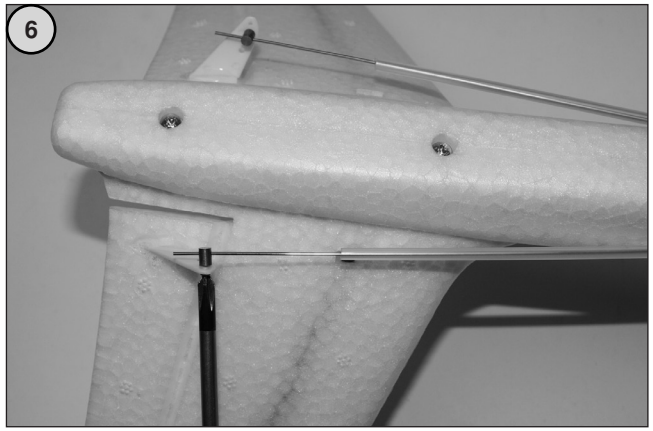


Fig. 6
- Check the servo neutrals once more. The servo arm must be at right-angles to the servo.
  The pushrod can now be screwed to the swivel barrels mounted on the control horns.

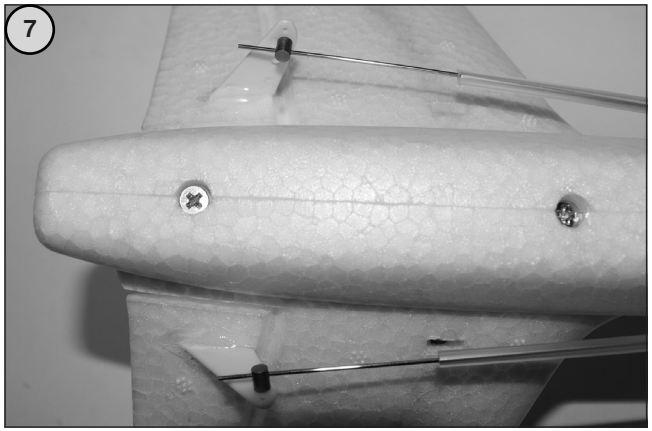


Fig. 7
- The illustration shows the V-tail and linkages mounted on the fuselage.

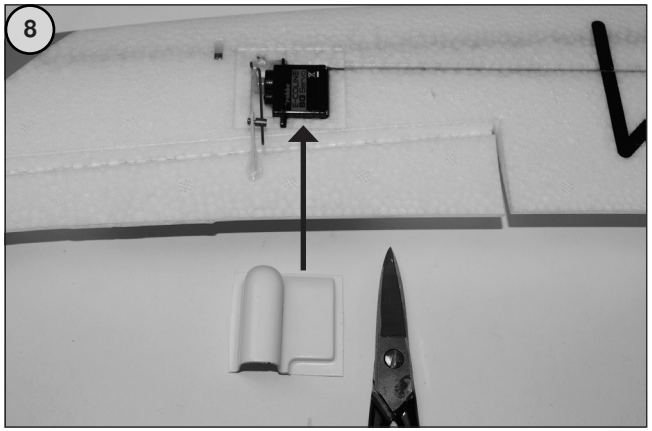


Fig. 8
- Trim the aileron servo covers to fit flush in the moulded-in servo mounts.

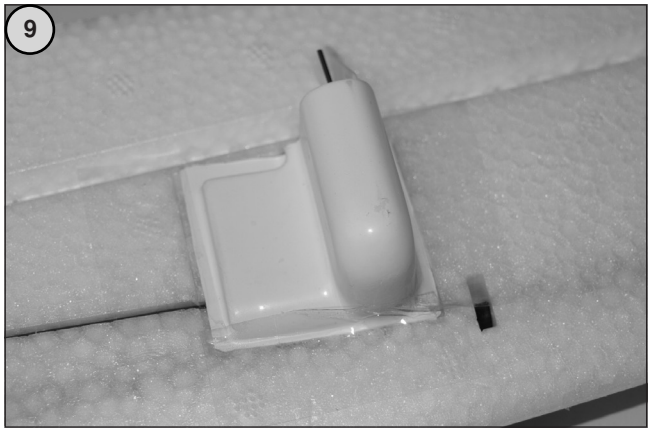


Fig. 9
- When the covers are a snug fit, attach them to the wings using strips of adhesive tape (see illustration).
- Repeat stages 8 and 9 on the other wing panel.

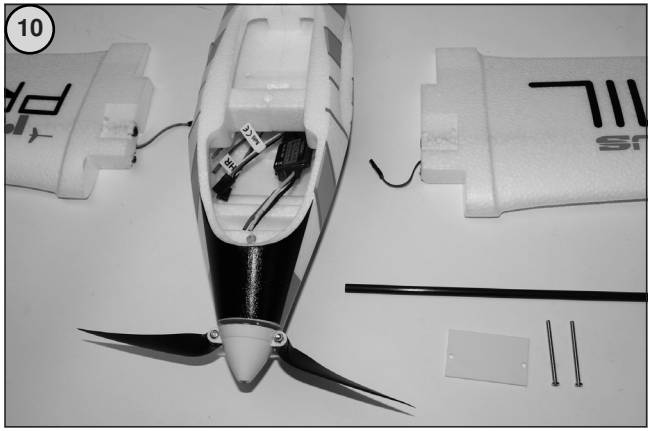


Fig. 10
- The picture shows the parts required to fit the wings on the fuselage.

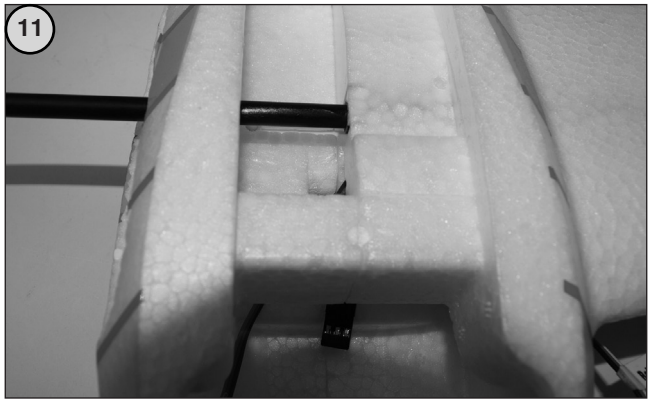


Fig. 11
- Push the left-hand wing panel into the recess in the fuselage, threading the servo lead through at the same time. Slide the wing joiner through the right-hand side of the fuselage and into the left-hand wing panel. Now fit the right-hand wing panel onto the joiner, threading the servo lead through the opening in the fuselage. Push the wings together as far as they will go.

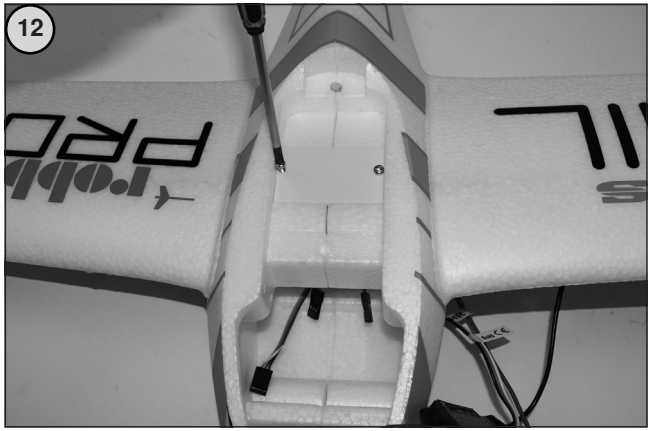


Fig. 12
- Install the wing retaining plate and fix it to the fuselage using the screws supplied.

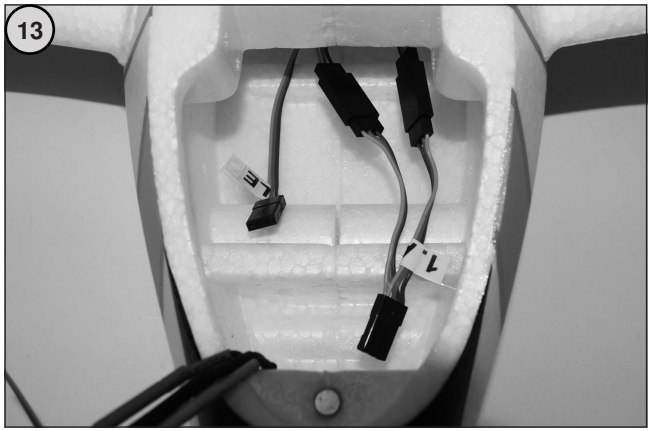


Fig. 13
- Connect the aileron servos to the receiver using a Y-lead.
- Connect the servos and the speed controller to the receiver, referring to the RC system instructions for the correct channel assignment and connector pin configuration (the orange signal wire corresponds to the white wire in robbe-Futaba systems). Place the receiver in the fuselage and deploy the receiver aerial(s).

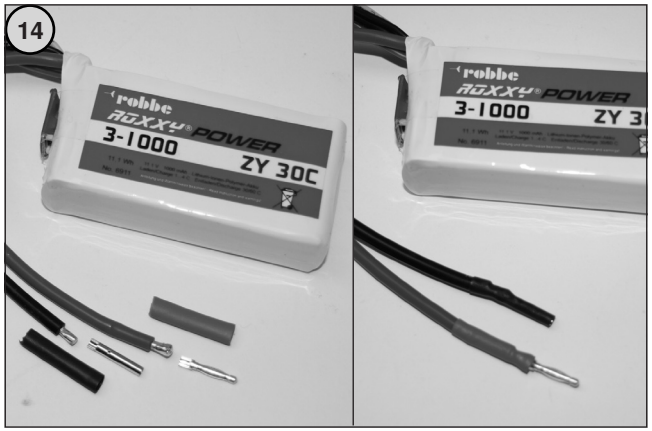


Fig. 14
- Attach a plug and socket to the flight battery by soldering a 2 mm socket to the black wire, and a 2 mm plug to the red wire.
  Insulate each soldered joint with a heat-shrink sleeve.

Fig. 15
- Fix the receiver in the fuselage using Velcro tape.
  Do not connect the battery at this point.

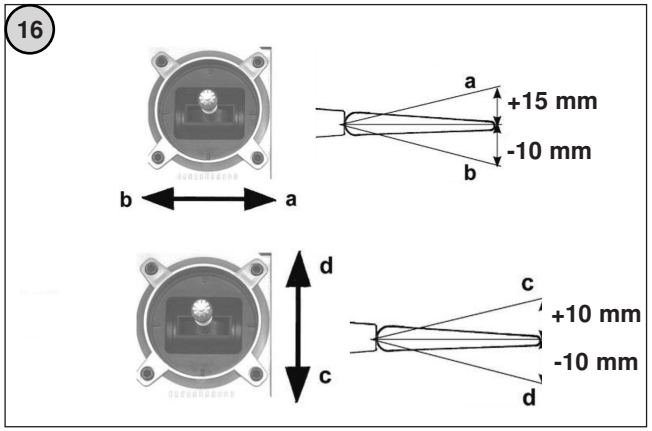


Fig. 16
- Aileron travel (a - b): +15 mm / -10mm
- Elevator travel (d - c): +/- 10 mm

Fig. 17
- On this model the Centre of Gravity “C.G.” is located at around the 60 mm point, measured from the wing root leading edge.
- Place the battery in the model for balancing; do not connect it.
- Mark the Centre of Gravity on both sides of the fuselage, as shown in the underside view.
- Support the model at the marked points and allow it to hang freely. Ideally the model will now balance level, with the nose inclined slightly down.
- Adjust the position of the flight battery if necessary.
- Mark the battery location in the fuselage, so that you can be confident of replacing it in the same position after removing it.
- With the battery in the correct position, fix it in place with hook-and-loop tape so that it cannot shift in flight and alter the model’s balance.
- The model is ready to fly once you have recharged the battery.

Checking the working systems, setting up the control surfaces

- Charge the flight battery.
- Switch the transmitter on, and move the throttle stick to the “motor off” end-point.
- Give the flight battery a full charge, apply Velcro (hook-and-loop) tape to the pack, place it in the fuselage, and connect it. Wait for the speed controller to emit a series of beeps.
- Place the canopy on the fuselage; it is held in place by a magnetic latch.
- Check the channel assignment of the control surfaces, and swap over the connectors at the receiver if necessary.
- Check the neutral position of the control surfaces. If necessary, loosen the clamping screws in the swivel pushrod connectors, set the control surfaces to centre, then re-tighten the screws.
- Check the direction of rotation of the servos.
- When you move the aileron stick to the right (a), the right-hand aileron (a) should rise, the left-hand aileron (b) fall.
- Pull the elevator stick back towards you (c), and the rear edge of both elevators should rise (c).
- If any of the control surface functions works the wrong way round, correct it using your transmitter’s servo reverse facility for that function.
- Check that all the linkages are firmly fixed, but free-moving. Check in particular that the clamping screws in the swivel pushrod connectors are tightened fully.
- The travels are measured at the inboard end of the control surfaces.
- The stated control throws are just a guide for the first few flights. The final settings should be selected to suit the individual pilot's flying style.
- The Expo settings should also be adjusted to suit the pilot's preference.

Test-flying, flying notes

Read the sections in the Safety Notes entitled “Routine pre-flight checks” and “Flying the model” before attempting to fly the model for the first time.

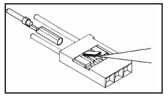
- For your initial test-flights please wait for a day with no more than a gentle breeze.
- A good flying site consists of a large, flat, open grassy field, devoid of trees, fences, high-tension overhead cables etc.
- Repeat the check of all the working systems.
- Ask an experienced modelling friend to hand-launch the aircraft for you. He should be capable of giving the aeroplane a reasonably strong, flat launch.
- The model must always be launched directly into any wind.
- With the motor running at full-throttle, give the aeroplane a firm launch directly into any breeze, with the fuselage and wings level.
- Keep the Arcus V-tail Prop 1400 flying straight and level at first; don’t initiate a turn while it is still close to the ground.
- Adjust the control surface trims if necessary, so that the model flies straight with a reasonable rate of climb “hands off”.
- Check the model's response to control commands You may need to increase or reduce the control surface travels after the first landing.
- Check the glider's stalling speed at a safe height.
- Keep the model’s speed well above the stall for the landing approach.
- Always switch off the motor before the model touches down, as this avoids damage to the propeller.
- If you needed to adjust the trims during the test-flight, correct the length of the appropriate pushrod once the model is back on the ground, then return the transmitter trims to centre so that full trim travel is available to both sides of neutral for subsequent flights.

Specification - 20 A speed controller:

Continuous current:	20 A
Peak current:	25 A, (max. 10 seconds)
BEC mode:	Linear
BEC output:	5V / 2A
NiMH cell count:	5 - 9
LiPo cell count:	2 - 3
Dimensions (speed controller):	42 x 25 x 8 mm
Weight:	19 g

Caution: this controller is not protected against reversed polarity. Connecting a battery to the controller's terminals with reversed polarity will instantly destroy the unit.

If you prefer to use a separate receiver battery instead of the BEC system, you must withdraw the red wire from the receiver lead attached to the controller, and insulate the bare end to avoid short-circuits.



VERY IMPORTANT: since different transmitters feature different throttle settings, we strongly advise you to use the "Throttle range set-up function" to calibrate the throttle range. Please read the appropriate section in the instructions.

Programmable settings:

1. Brake: on / off
2. Battery type: LiPo / NiMH
3. Low-voltage guard (Cut-Off mode): Soft Cut-Off (power reduction / cut-off (switches off immediately)
4. Low voltage cut-off voltage (Cut-Off threshold): low / medium / high
   The cell count is detected automatically when Lithium batteries are used.
   low (2.85 V) / medium (3.15 V) / high (3.3 V / 2.85 V / 3.15 V / 3.3 V.2)
5. Start mode: normal / soft / super-soft (300 ms / 1.5 s / 3 s)
6. Timing: low / medium / high (3.75° / 15° / 26.25°)
   The normal setting is "low". A different setting can also be selected for higher motor speed.

The speed controller in use

Since the throttle travel is not the same for all radio control systems, it is essential to calibrate the throttle travel before flying the model. If you are using a Futaba RC system, it is always necessary to set the throttle channel (3) to "reverse".

Setting the throttle travel:

(the throttle travel should be re-adjusted if you change the radio control system)

1. Switch the transmitter on, and move the throttle stick to the full-throttle position.
2. Connect the battery to the speed controller and wait about two seconds.
3. You will hear a ”beep-beep” sound, confirming the full-throttle position.
4. Now move the throttle stick to the bottom position (towards you): you will hear several "beeps", indicating the cell count.
5. You should hear a long “beep” to confirm the Idle end-point of the throttle stick.

Normal procedure when flying:

1. Move the throttle stick to the bottom position (towards you), and switch the transmitter on.
2. Connect the battery to the speed controller. A special sound similar to ♪“123” indicates that the power supply is OK.
3. You should hear several “beeps” to indicate the cell-count of the Lithium battery.
4. You will hear a long "beep----" when the self-test is concluded.
5. To start the motor, move the throttle stick slowly forward until it reaches the end-point.

Protective functions:

1. **Safety functions:**
   If the motor does not start running within two seconds of being switched on, the speed controller automatically switches itself off. The motor must now be set to the "OFF" position.

Programming the speed controller:

(**Note:** please check that the throttle curve is set to 0%, the throttle stick is at the neutral position, and the throttle travel is set to 100%).

1. Starting programming mode
2. Selecting the programming point
3. Setting the programming point (value):
4. Quitting programming mode

1. Starting programming mode

1) Switch the transmitter on, and move the throttle stick to "full-throttle". Connect the speed controller to the battery.
2) Wait two seconds: you should hear a “beep- beep” sound.
3) Wait a further five seconds; you should hear a special ♪“56712” sound. The controller is now in programming mode.

2. Selecting the programming point:

When programming mode starts, you will hear eight different sounds in a loop; the sequence is described in the following section. Move the throttle stick back to the Neutral position within three seconds.

1. “beep”	Brake	(1 x brief beep)
2. “beep-beep”	Battery type	(2 x brief beep)
3. “beep-beep-beep”	Low voltage	(3 x brief beep)
4) “beep-beep-beep-beep”	Cut-off voltage	(4 x brief beep)
5. “beep-----”	Start mode	(1 x long beep)
6. “beep-----beep”	Timing	(1 x long, 1 x brief)
7. “beep-----beep-beep”	Reset to default	(1 x long, 2 x brief)
8. “beep-----beep-----”	Quit	(2 x long beep)

3. Setting the programming point (value):

You will hear a sequence of different sounds In a loop; you set the sound value by moving the throttle stick to the full-throttle position. This is followed by the special ♪“1515” sound, confirming your chosen value. (Holding the throttle stick at full-throttle returns you to Step 2, and you can select another point. Returning the throttle stick to the Neutral position within two seconds quits programming mode.)

Point	**“beep” sound** (1 brief beep)	**“beep-beep” sound** (2 brief beeps)	**“beep-beep-beep” sound** (3 brief beeps)
Brake	Off	On	–
Battery type	LiPo	NiMH	–
Cut-off	Soft cut	Cut-off	–
Cut-off threshold	low	medium	high
Start mode	normal	soft	super-soft
Timing	low	medium	high

4. Quitting programming mode

There are two methods of quitting programming mode:

1. At programming point 3: move the throttle stick to the Neutral position within two seconds of hearing the special ♪“1515” sound.
2. At programming point 2: move the throttle stick to the Neutral position within three seconds of hearing the “beep-----beep-----” sound (e.g. Point No. 8).

Safety Notes

- Always keep to the power-on sequence: switch the transmitter on first, and then the receiver. Reverse the sequence when switching off.
- Observe the limits stated in the Specification.
- Maintain correct polarity in all connections.
- Take great care to avoid short-circuits.
- Install and protect the speed controller in such a way that it cannot come into contact with grease, oil or water.
- Ensure that air circulation is adequate.
- Keep well clear of the rotational plane of the propeller when the motor is running - **injury hazard.**

Replacement Parts list - Arcus V-Tail Prop 1400

No.	Article description
25920002	Wing set
25920003	V-tail set
25920004	Linkages and small items
25920005	BL speed controller, 20 A
25930001	Fuselage
25930004	Linkages and small items
25930005	Spinner
25930006	Motor mount
25930007	Propeller, 8 x 6"
25930008	Decal sheet
25930009	BL motor

Guarantee

Naturally all our products are guaranteed for 24 months as required by law. If you wish to make a justified claim under guarantee, please contact your dealer in the first instance, as he is responsible for the guarantee and for processing guarantee claims. During the guarantee period we will rectify any functional defects, production faults or material flaws at no cost to you. We will not accept any further claims, e.g. for consequential damage.

Goods must be sent to us carriage-paid; we will pay return carriage costs. We wil l not accept any packages sent without pre-paid postage.

We accept no liability for transport damage, nor for the loss of your shipment. We recommend that you take out appropriate insurance.

Send your device to the approved Service Centre in your country.

The following requirements must be fulfilled before we can process your guarantee claim:

- You must include proof of purchase (till receipt) with the returned product.
- You must have operated the product in accordance with the operating instructions.
- You must have used recommended power sources and genuine robbe accessories exclusively.
- There must be no damage present caused by moisture, unauthorised intervention, polarity reversal, overloading and mechanical stress.
- Please include a concise, accurate description of the fault to help us locate the problem.

Service Centre addresses

Country	Company	Street	Town	Telephone	Fax	E-mail
Andorra	Sorteney	Santa Anna, 13	AND-00130 Les escaldes- Princip. D'Andorre	00376-862 865	00376-825 476	sorteny@sorteny.com
Denmark	Nordic Hobby A/S	Bogensevej 13	DK-8940 Randers SV	0045-86-43 61 00	0045-86-43 77 44	hobby@nordichobby.com
Germany	robbe-Service	Metzloser Str. 38	D-36355 Grebenhain	0049-6644-87-777	0049-6644-87-779	hotline@robbe.com
England	robbe-Schlüter UK	LE10-UB	GB-LE10 3DS Leicestershire	0044-1455-637151	0044-1455-635151	keith@robbeuk.co.uk
France	S.A.V Messe	6, Rue Usson du Poitou, BP 12	F-57730 Folschviller	0033 3 87 94 62 58	0033-3-87 94 62 58	sav-robbe@wanadoo.fr
Greece	TAG Models Hellas	18,Vriullon Str.	GR-14341 New Philadelfia/Athens	0030-2-102584380	0030-2-102533533	info@tagmodels.gr
Italy	MC-Electronic	Via del Progresso, 25	I-36010 Cavazzale di Monticello C.Otto (Vi)	0039 0444 945992	0039 0444 945991	mcelec@libero.it
Netherlands / Belg.	Jan van Mouwerik	Slot de Houvelaan 30	NL-3155 Maasland	0031-10-59 13 594	0031-10-59 13 594	van_Mouwerik@versatel.nl
Norway	Norwegian Modellers	Box 2140	N-3103 Toensberg	0047-333 78 000	0047-333 78 001	per@modellers.com
Austria	robbe-Service	Puchgasse 1	A-1220 Wien	0043-1259-66-52	0043-1258-11-79	office@robbe.at
Sweden	Minicars Hobby A.B.	Bergsbrunnagatan 18	S-75323 Uppsala	0046-186 06 571	0046-186 06 579	info@minicars.se
Switzerland	robbe Futaba Service	Hinterer Schürmattweg 25	CH-4203 Grellingen	0041-61-741 23 22	0041-61 741 23 34	info@robbefutaba-service.ch
Slovakian Rep.	Ivo Marhoun	Horova 9	CZ-35201 AS	00420 351 120 162		ivm2000@seznam.cz
Spain	robbe-Service	Metzloser Str. 38	D-36355 Grebenhain	0049-6644-87-777	0049-6644-87-779	hotline@robbe.com
Czech Rep.	Ivo Marhoun	Horova 9	CZ-35201 AS	00420 351 120 162		ivm2000@seznam.cz

CE

robbe Modellsport GmbH & Co. KG hereby declares that this device conforms to the fundamental requirements and other relevant regulations of the corresponding EC Directive. You can read the original Conformity Declaration on the Internet at www.robbe.com: click on the "Conformity Declaration" logo button which you will find next to the corresponding device description.

This symbol means that you should dispose of electrical and electronic equipment separately from the household waste when it reaches the end of its useful life.

Take your unwanted equipment to your local council collection point or recycling centre. This requirement applies to member countries of the European Union as well as other non-European countries with a separate waste collection system.

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